

Unit 5

Day 6

Factoring Using Imaginary Numbers

FACTOR OVER COMPLEX:

1)

$$x^2 + 16 = x^2 - (-16) = (x + \sqrt{-16})(x - \sqrt{-16}) \\ (x + 4i)(x - 4i)$$

FACTOR OVER COMPLEX:

$$\begin{aligned} 2) \quad 9m^2 + 32 &= 9m^2 - (-32) = (3m + \sqrt{-32})(3m - \sqrt{-32}) \\ &= (3m + 4i\sqrt{2})(3m - 4i\sqrt{2}) \end{aligned}$$

FACTOR OVER COMPLEX:

3)

$$18a^2 + 25b^2 = 18a^2 - (-25b^2)$$

$$(a\sqrt{18} + \sqrt{-25}b)(a\sqrt{18} - \sqrt{-25}b)$$

$$(3a\sqrt{2} + 5bi)(3a\sqrt{2} - 5bi)$$

FACTOR COMPLETELY USING REAL & IMAGINARY NUMBERS:

4)

$$9y^4 - 1 = (3y^2 - 1)(3y^2 + 1)$$

$$(y\sqrt{3} + 1)(y\sqrt{3} - 1)(y\sqrt{3} + i)(y\sqrt{3} - i)$$

FACTORING FOR CALCULUS:

5)

$$5(3y + 8)^2 + 10(y - 4)(3y + 8) =$$

$$5(3y + 8) \left[1(3y + 8) + 2(y - 4) \right]$$

$$5(3y + 8)(5y)$$

$$(15y + 40)(5y)$$

$$5(3y + 8)(5y)$$

FACTORING FOR CALCULUS:

$$6) \quad \frac{(x^2 + 1)4 - (4x - 2)(2x)}{(x^2 + 1)^2} =$$

HOMEWORK:

Worksheet #4: 1-6 (bottom)

Worksheet Day 5&6: 70-79 (all)

HW Wksht 4 1-6 bottom, Wksht 70-79 all

$$\textcircled{10} 2(3x-4)^2 + (x-5)(2)(3x-4)(3)$$

$$2(3x-4) \left[(3x-4) + (x-5)(3) \right]$$

$$2(3x-4)(3x-4 + 3x-15)$$

$$2(3x-4)(6x-19)$$

$$\underline{(7x-8)^{-5}(-2)(3x+2)^3(3)} + \underline{(3x+2)^{-2}(-5)(7x-8)^{-6}(7)}$$

79

$$(7x-8)^{-6}(3x+2)^{-3} \left[(7x-8)(-2)(3) + (3x+2)(-35) \right]$$

$$(7x-8)^{-6}(3x+2)^{-3} (-42x + 48 - 105x - 70)$$

$$(7x-8)^{-6}(3x+2)^{-3} (-147x - 22)$$